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(54) Title: METHOD FOR BROWSING INFORMATION WITH SET TOP BOX HAVING TV PLAZA FUNCTION
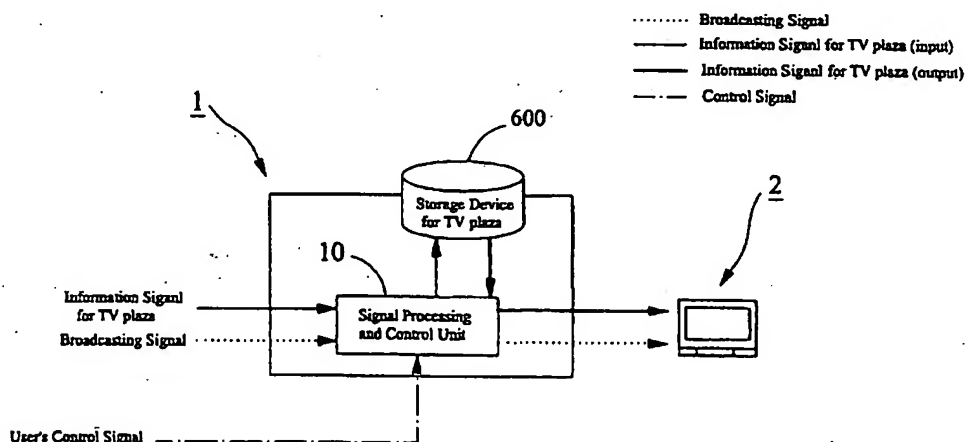
(57) Abstract: The present invention relates to a method for browsing an information with a set top box having TV plaza function, comprising the steps of: i) storing a TV plaza information signal, independently of a user's request, to a storage device of the set top box in order to construct a TV plaza within the set top box; ii) in response to user's selection of an item to be interested in, bookmarking a metadata of the selected item in a memory of the set top box; iii) extracting data directed to the bookmarked metadata of the selected item from the TV plaza information stored in the storage device; and iv) delivering the extracted data to user's TV in order to display them on the user's TV.

METHOD FOR BROWSING INFORMATION
WITH SET TOP BOX HAVING TV PLAZA FUNCTION

TECHNICAL FILED OF THE INVENTION

5   The present invention relates to method for browsing information with a set top box having TV plaza function.

BACKGROUND OF THE INVENTION

Interactive televisions have been tested and developed by
10   various satellite broadcasting providers, telephone providers and/or cable television providers. The interactive televisions enable users to actively interact with the televisions beyond simple channel manipulation, simple tone control, simple videotape recoding, etc. For example, the users of the
15   interactive televisions can make an access to videos on demand, payments of bills, banking and shopping, and participate in forums. The interactive televisions are expected to substantially accelerate the information society including the people who are not intimate to a computer such as housewives and
20   the aged. But, there remain some unsolved problems of low transmission rate, low distribution of bi-directional transmission network.

FIG. 1 schematically illustrates the basic structure of one
25   of the conventional set top boxes. As shown in FIG. 1, the

1

conventional set top box comprises a signal input interface **100** which receives a broadcast signal from broadcasting providers, a demultiplexer (DEMUX) **200** which classifies the received broadcast signal, a signal output interface **300** which decodes

5   the received broadcast signal and transmits the decoded broadcast signal to a user's display device, and a microprocessor **400** which generates a command in response to user's control signal.

10   FIG. 2 schematically illustrates an exemplary embodiment of the processing of a broadcast signal by the conventional set top box shown in FIG. 1, wherein a signal input interface **100** comprises a tuner **101** which receives an encoded broadcast signal and a channel decoder **102** which extracts a user-requested

15 channel from the received broadcast signal under control of a microprocessor **400**. The broadcast signal encoded under a suitable compression standard can be one of a video signal, an audio signal, a data signal for data broadcast or a composite signal thereof. The broadcast signal is classified by the action

20 of a DEMUX **200** and then is transmitted to a signal output interface **300**.

Relied upon the forms of the broadcast signal, the signal output interface **300** comprises at least one decoder selected

25 from the group consisting of a data decoder **301** which decodes

the data signal, a video decoder **302** which decodes the video

signal, and an audio decoder **303** which decodes the audio signal.

For example, the DEMUX **200** extracts an audio signal from the

user-requested channel and then transmits it to the audio

5   decoder **303** which decodes the delivered audio signal and

transmits the decoded signal to a user's speaker in an analog

form.

Likewise, a video signal is decoded by the video decoder

10   **302** of the signal output interface **300** and is then transmitted

to a user's TV. If the user's TV is analog type, the decoded

video signal is transmitted to the user's TV in an encoded form

by one of various standard video formats, for example,

NTSC(National Television Standard Committee), RGB(Red-Green-

15   Blue) and PAL(Phase Alternation by Line). In case that the

broadcast signal is a composite signal, for example, of the data

signal and the video signal, the data and video signals are

separated each other from the composite signal by the action of

the DEMUX **200** and is transmitted to the data decoder **301** and the

20   video decoder **302**, respectively. If matching of the decoded data

and video signals is required, the matching is performed through

graphic over lay technology. The matched signal is then

transmitted to the user's TV.

25   In order to satisfy various demands of the users, the set

3

top box may additionally comprise an operating system, operating program, a memory (ROM, RAM) storing the data in use, and a storage device (for example, a hard drive) into which the programs to be recorded are stored.

5

However, the method for searching items to be interested in is not well established. Even though bi-directional communications are popularly used, the time for accessing to external servers through return path servers would be very

10 longer. Frequent access to the external servers might be an excessive burden to the return path servers.

SUMMARY OF THE INVENTION

The object of the present invention is to provide a method

15 for browsing items to be searched in a simple and rapid manner, without any access to an external server.

Another object of the present invention is to provide a method for browsing information with a set top box having TV plaza function, comprising the steps of: i) storing a TV plaza

20 information signal, independently of a user's request, to a storage device of the set top box in order to construct a TV plaza within the set top box; ii) in response to user's selection of an item to be interested in, bookmarking a metadata of the selected item in a memory of the set top box; iii)

25 extracting data directed to the bookmarked metadata of the

selected item from the TV plaza information stored in the storage device; and iv) delivering the extracted data to user's TV in order to display them on the user's TV.

5   The other object of the present invention is to provide a method for provide a method for browsing information with a set top box having TV plaza function, wherein the TV plaza information comprises a first identification data region from which the transmitted information is identified as an TV plaza

10   information, a second identification data region from which a TV plaza subscriber to whom the TV plaza information belongs is identified, a data region into which a TV plaza information to be informed from a TV plaza subscriber to a user is stored, and a metadata region into which a metadata is included, and the

15 step iii) is carried out by comparing the bookmarked metadata of the selected item with the metadata of the TV plaza information.

BRIEF DESCRIPTION OF THE DRAWINGS

20   FIG. 1 is a schematic block diagram illustrating the basic structure of the conventional set top box, and the flow of a broadcast signal.

     FIG. 2 is a schematic block diagram illustrating a specific exemplary embodiment of the conventional set top box shown in

25 FIG. 1, and the flow of a broadcast signal.

FIG. 3 is a schematic block diagram illustrating the method of the present invention.

FIG. 4 is a constitutional diagram showing a preferred embodiment of a TV plaza information signal which is adequate

5   for the method of the present invention.

FIG. 5 is a block diagram exemplarily illustrating the method of the present invention.

FIG. 6 is a diagram showing a preferred embodiment of a user interface displayed on user's TV.

10

DETAILED DESCRIPTION OF THE INVENTION

As used herein, the phrase "TV plaza" (television plaza) refers to a plaza formed within a set top box, wherein the plaza is formed by storing information data supplied from various

15   information providers other than a TV user (or viewer) into a storage device of the set top box independently of the TV user (or viewer), and the user searches and displays the information data previously stored within the set top box onto the user's TV. That is, TV plaza refers to a plaza of the information data

20   stored independently of the user's request into a storage device of the set top box and the user can browse or navigate the user-independently stored information and displays the user-requested information.

25   The phrase "TV plaza information", as used herein, refers

to information supplied for the construction of TV plaza. The storage and the correction of the TV plaza information are independent of a user's request or demand, while the navigation and the display of the information are dependent upon the user's

5   request. Such TV plaza information may be life information including advertisement information (for example goods information and company information), education information, stock information and weather information. Further, the phrase "a TV plaza information signal" refers to a signal produced from

10   suitable digital encoding of TV plaza information such that a set top box can receive the signal. The TV plaza information signal is characterized in that the information signal is independent of the ordinary broadcast signal and is stored independently of the user's request into a storage device such

15   as hard disk assigned to store the information signal, thereby constructing TV plaza within the set top box of the user.

The phrase "a broadcast signal", as used herein, refers to a signal in which a user can determine both the storage of the

20   broadcast signal and the display thereof. Such a broadcast signal includes, but is not limited to, ordinary signals supplied by television broadcasting provider such as KBS, MBC, SBS, CNN and NHK, satellite broadcasting providers and CATV broadcasting providers.

25

While providers for the TV plaza information signal can be different from those for the broadcast signal, preferably the TV plaza information signal and the broadcast signal are provided by the same providers. But, it should be understood that TV plaza information signal and the broadcast signal are provided in a separated form. The phrase "a separated form" means that the TV plaza information signal has different identification information from that of the broadcast signal.

The phrase "a TV plaza operator", as used herein, refers to a person who operates and manages TV plaza as a whole. Further, "a TV plaza subscriber" refers to a person who provides TV plaza information under the agreement with the TV plaza operator. As a TV plaza subscriber, the persons who intend to advertise goods, to inform companies and/or services can be mentioned.

In the following, the present invention will be more fully illustrated referring to the attached drawings.

FIG. 3 is a schematic block diagram illustrating the method of the present invention. A TV plaza information signal transmitted together with a broadcast signal is processed by a signal processing and control unit 10 of a set top box 1, and is stored, independently of a user's request, in a storage device 600 of the set top box 1 in order to construct a TV plaza. The broadcast signal is also processed by the signal processing and

control unit 10 and a user-requested channel signal is displayed

on user's TV 2. When an item about which a user want to have

more detailed information is found in the displayed program, a

user selects the item by manipulation of a control device (for

5   example, a remote controller or a wireless keyboard). A metadata

corresponding to the selected item is bookmarked in a memory

(not shown) of the signal processing and control unit 10. In

response to the user's request, the signal processing and

control unit 10 browses and extracts data directed to the

10   metadata of the item to be interested in from a TV plaza

constructed in the storage device 600. The extracted TV plaza

information is transferred and displayed on the user's TV 2.

FIG. 4 is a constitutional diagram showing a preferred

15   embodiment of a TV plaza information signal which is adequate

for the method of the present invention. The TV plaza

information signal 20 comprises a TV plaza information

identification data region 21, a TV plaza subscriber

identification data region 22, a TV plaza information data

20   region 23 and a metadata region 24. The TV plaza information

identification data region 21 includes the information from

which the transmitted information is identified as a TV plaza

information. The signal processing and control unit 10 examines

the TV plaza information identification data region 21 in order

25   to confirm whether the received data is the TV plaza information

9

or not. If the received data is proven to be a TV plaza

information, it delivers the received data to a storage device

600 independently of the user's request. The TV plaza subscriber

identification data region **22** includes the information from

5   which a TV plaza subscriber is identified. The signal processing

and control unit **10** examines the TV plaza subscriber

identification data region **22** in order to confirm to whom the TV

plaza information belongs, and then stores the received data in

a corresponding storage region of the storage device **600**. The TV

10 plaza subscriber identification data region **22** allows

subscriber-dependent storage and management of the TV plaza

information. The TV plaza information data region **23** includes

the information of which the TV plaza subscriber informs the

user. In response to the user's request for more detailed

15 information, the TV plaza information data region **23** is

displayed on the user's TV **2**. The metadata region **24** includes a

metadata, which allows efficient management of the TV plaza

information. For example, when advertising information is

included in the TV plaza information data region **23**, the name of

20 the manufacturer, the name of goods and brief description

thereto can be included in the metadata region **24**.

FIG. 5 is a block diagram exemplarily illustrating the

method of the present invention. The signal processing and

25 control unit **10** of a set top box **1** comprises at least a signal

10

input interface **100**, a demultiplexer (DEMUX) **200**, a signal

output interface **300**, a microprocessor **400** and a memory **500**. The

signal input interface **100** receives the broadcast signal and the

TV plaza information signal, and the DEMUX 200 classifies the

5   received signals and separates them into an audio signal, a

video signal and a data signal for data broadcasting. The signal

output interface **300** coupled to a user's TV **2**, decodes and

delivers the signals to the user's TV **2**. The microprocessor **400**

controls the system, and the memory **500** stores operating systems,

10 applications and data in use. The memory **500** is classified as a

ROM(read only memory) which stores the operating systems and the

applications and a RAM(random access memory) which stores the

operating systems and the applications, and the data in use. As

a RAM, a non-volatile flash memory can be used. The storage

15 device **600** of the set top box **1** includes regions assigned to

store the TV plaza information.

The TV plaza information signal and the broadcast signal,

which are preferably digitally compressed by one of various

20 compression standards (for example, MPEG standard), are firstly

transmitted to the signal input interface **100** of the signal

processing and control unit **10**. Of the received signals, the TV

plaza information signal is separated from the broadcast signal

by the DEMUX **200** and then, is stored independently of the user's

25 control signal into a storage device **600** to construct a TV plaza

11

within the set top box 1 of the user. When a user's request for the information is received, the TV plaza information stored in the storage device 600 is transmitted to the signal output interface 300 via the DEMUX 200 under control of the

5 microprocessor 400, and there, the TV plaza information is decoded and displayed on the user's TV 2. In a meanwhile, when the TV plaza information signal and/or the broadcast signal is a composite signal having a mixed form selected from a video signal, an audio signal and a data signal for data broadcast,

10 the composite signal is separated into one another by action of the DEMUX 200 and then is transmitted to the corresponding decoder, and the decoded signal is delivered to the user's TV 2. The broadcast signal of the received signals is processed in a conventional manner. That is, the broadcast signal is

15 transmitted to the signal output interface 300 through the DEMUX 200 under control of the microprocessor 400, and there, decoding of the broadcast signal is performed. The decoded broadcast signal is then transmitted and displayed on the user's TV 2.

20 In viewing the displayed program, the user may find an item about which more detailed information is required. When the item to be searched is selected by the user, the metadata corresponding to the selected item is bookmarked in response to the user's request, under the control of the microprocessor 400

25 in the memory 500, more specifically in the RAM. Thereafter, the

12

microprocessor **400** browse the TV plaza information stored in the
storage device **600** and then extracts the TV plaza information
directed to the bookmarked metadata of the item to be interested
in. Decision on the relevancy is carried out by comparing the
5   bookmarked metadata of the selected item with the metadata of
the TV plaza information. The extracted TV plaza information is
transferred and displayed on the user's TV **2** through the DEMUX
200 and the signal output interface **300**. Herein, it is
preferable to display the metadata of the extracted information
10 at first. The user may display the whole information to be
interested in by browsing and selecting the displayed metadata
of the extracted TV plaza information.

FIG. 6 shows a preferred embodiment of a user interface
15 displayed on the user's TV. As shown in FIG. 6, the user
interface **40** comprises a screen display window **41** which displays
the program to be view, and a result display window **42** which
displays the search results, wherein the user selects the
metadata to be browsed using a control device such as remote
20 controller, and detailed contents of the information is
displayed, for example, on the screen display window **41** or on an
additional pop-up window.

INDUSTRIAL APPLICABILITY

25   The method for browsing information with the set top box

13

having TV plaza function according to the present invention enables a simple and rapid access to the information to be interested in. That is, even though the information can be obtained from bi-directional communication, the method utilizes

5   the subscriber-dependent TV plaza information constructed within the set top box. For this reason, the method makes it possible to save the time required for the access to external severs via return path servers and to secure the information in a simple and rapid manner. The method avoids possible excessive burdens

10 loaded to the return path servers resulted from acquisition of the information through bi-directional communication.
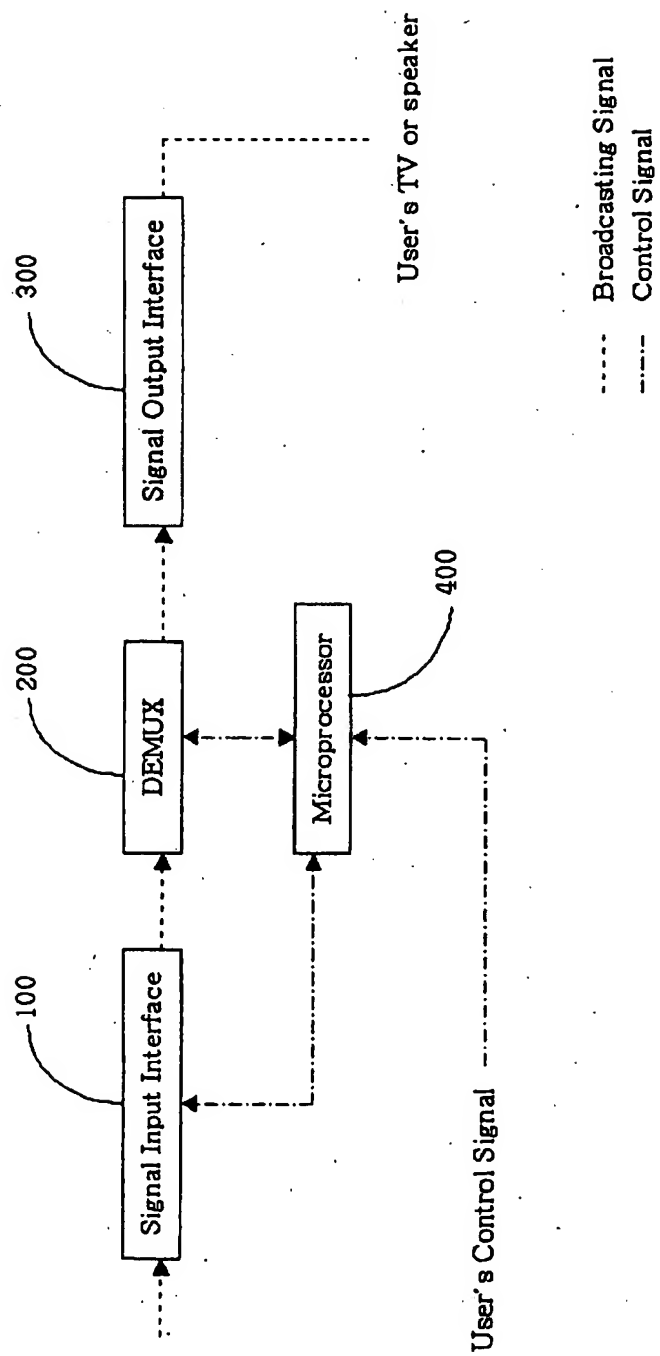
CLAIMS

1. A method for browsing information with a set top box having TV plaza function, comprising the steps of: i) storing a TV

5 plaza information signal, independently of a user's request, to a storage device of the set top box in order to construct a TV plaza within the set top box; ii) in response to user's selection of an item to be interested in, bookmarking a metadata of the selected item in a memory of the set top box; iii)

10 extracting data directed to the bookmarked metadata of the selected item from the TV plaza information stored in the storage device; and iv) delivering the extracted data to user's TV in order to display them on the user's TV.

15 2. The method as set forth in claim 1, wherein the TV plaza information comprises a first identification data region from which the transmitted information is identified as an TV plaza information, a second identification data region from which a TV plaza subscriber to whom the TV plaza information belongs is

20 identified, a data region into which a TV plaza information to be informed from a TV plaza subscriber to a user is stored, and a metadata region into which a metadata is included, and the step iii) is carried out by comparing the bookmarked metadata of the selected item with the metadata of the TV plaza information.

25

3. The method as set forth in claim 1, wherein the step iv) is carried out by displaying the metadata of the extracted TV plaza information at first, and then displaying detailed contents of the TV plaza information directed to the user-selected metadata.
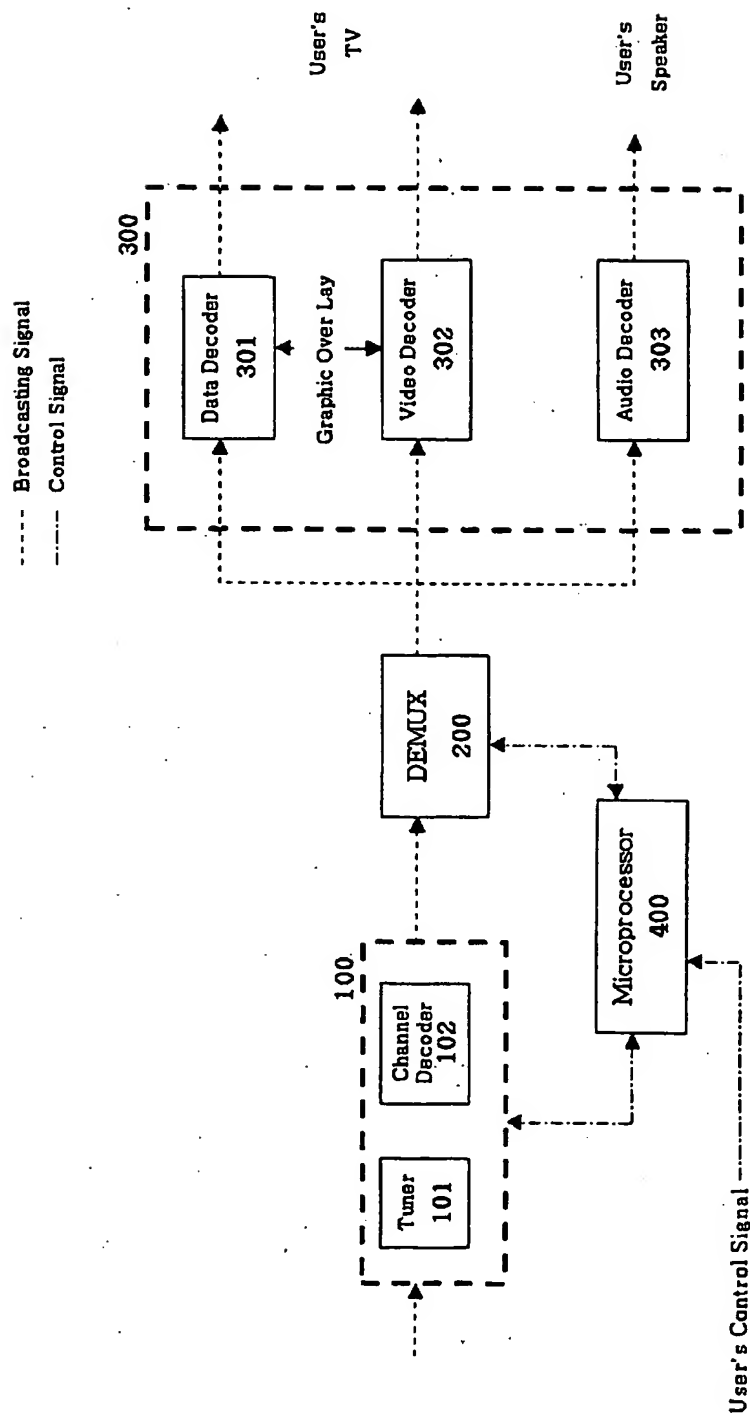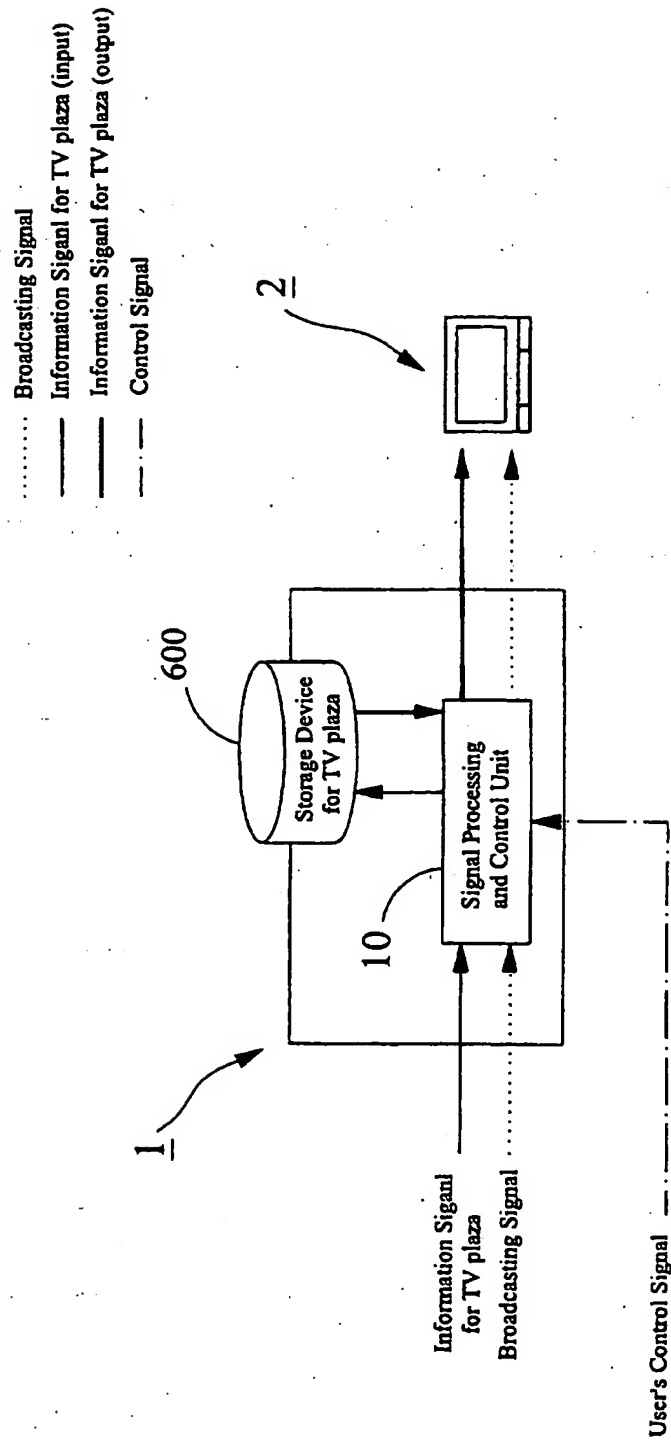
1/6

FIG. 1

PRIOR ART

FIG. 2

PRIOR ART

FIG. 3

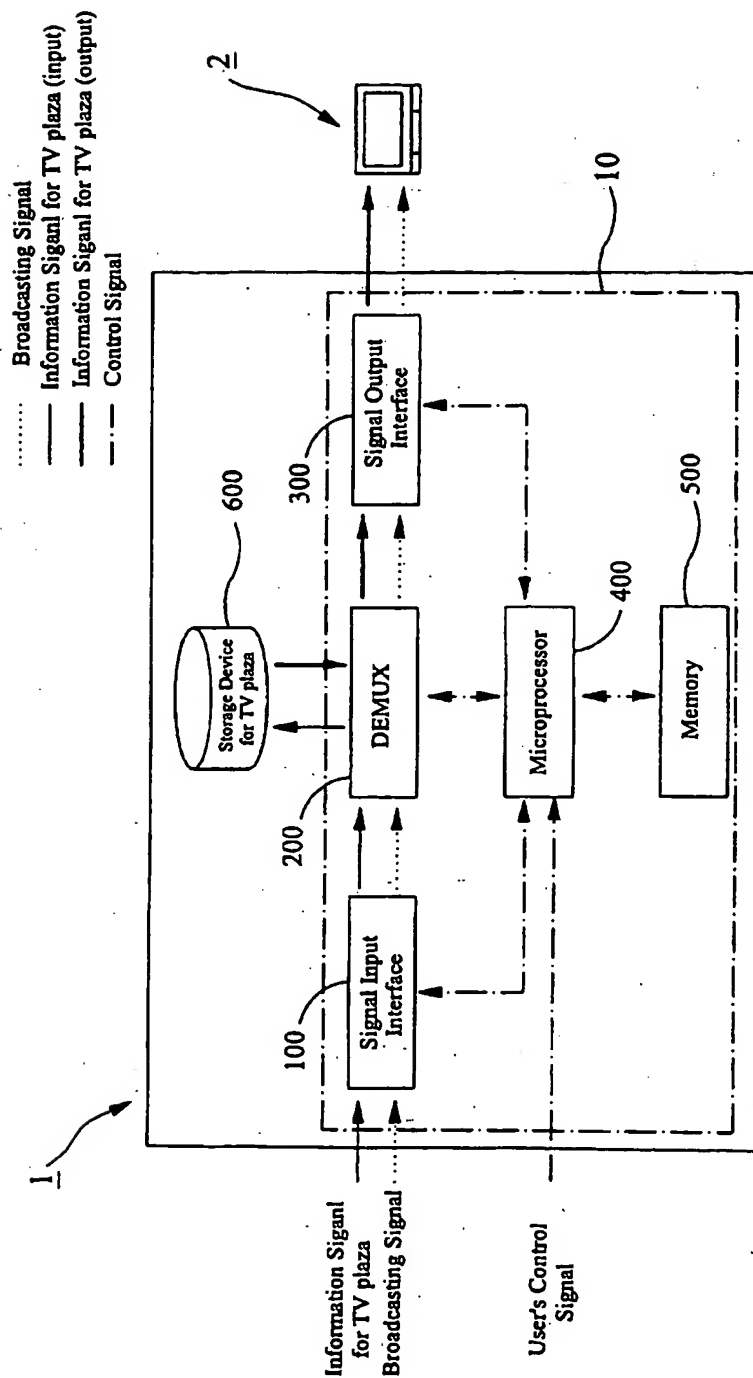Broadcasting Signal

Information Siganl for TV plaza (input)

Information Siganl for TV plaza (output)

Control Signal

Storage Device for TV plaza

600

Signal Processing and Control Unit

10

1

2

Information Siganl for TV plaza

Broadcasting Signal

User's Control Signal

FIG. 4

20

TV PLAZA INDENTIFICATION INFORMATION 21	TV PLAZA SUBSCRIBER INDENTIFICATION INFORMATION 22	TV PLAZA INFORMATION 23	METADATA 24
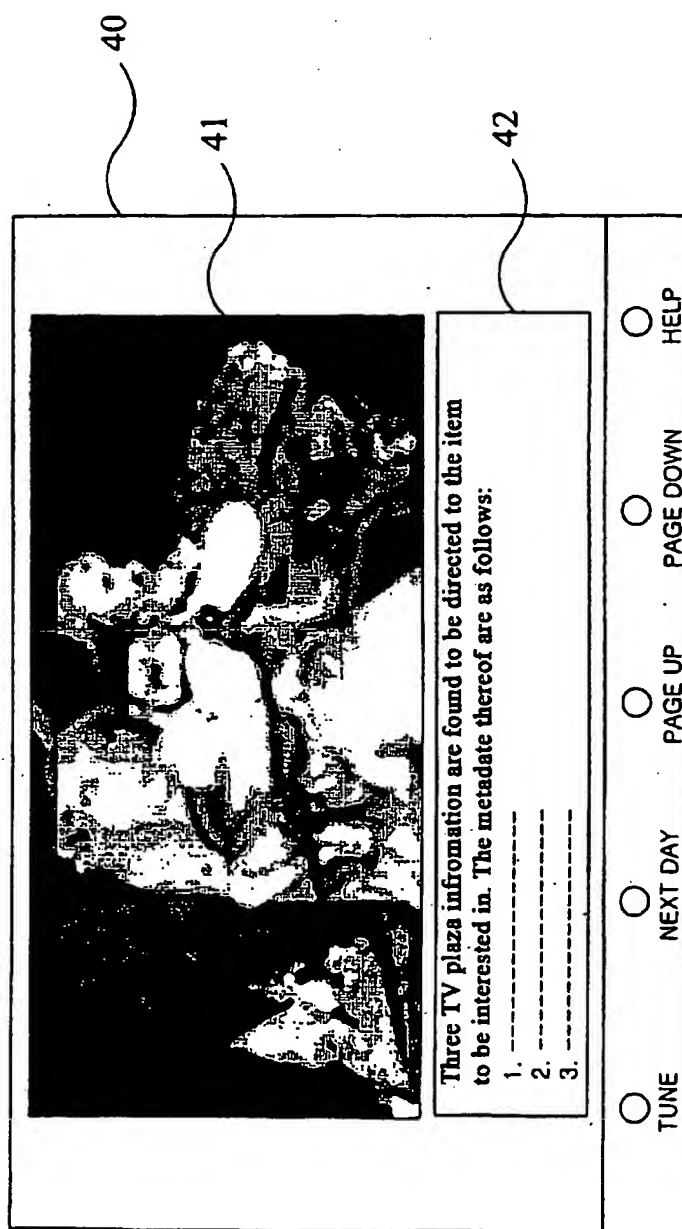
FIG. 5

FIG. 6

Three TV plaza infromation are found to be directed to the item
to be interested in. The metadate thereof are as follows:

1. _____
2. _____
3. _____

TUNE   NEXT DAY   PAGE UP   PAGE DOWN   HELP

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04N 7/173

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl.7 H04N 7/173, H04N 5/44

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
·· Korean Patents and applications for inventions since 1975
Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKIPASS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2002-32140 A2 (UNITED VIDEO PROPERTIES, INC.) 18 April 2002 - See the whole document	1-3
Y	WO 2002-11433 A2 (KONINKLIJKE PHILIPS ELECTRONICS N.V.) 07 Feburary 2002 - See the whole document	1-3
A	WO 2001-19085 A1 (KONINKLIJKE PHILIPS ELECTRONICS N.V.) 29 August 2001 - See the whole document	1-3
A	WO 2001-24524 A1 (KONINKLIJKE PHILIPS ELECTRONICS N.V.) 28 September 1999 - See the whole document	1-3

☐ Further documents are listed in the continuation of Box C.   ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 JULY 2004 (20.07.2004)	21 JULY 2004 (21.07.2004)

Name and mailing address of the ISA/KR	Authorized officer
Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	KWON, KI WON Telephone No. 82-42-481-8123

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2002-32140 A2		US2002-42921	11.04.2002
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